

Claims

1. A method of producing a fluid device with a fluid structure having an active height, said method comprising the following steps:

providing a basic wafer comprising a supporting substrate, an intermediate layer on the supporting substrate and a patterned layer on the supporting substrate, the thickness of the patterned layer determining the active height of the fluid structure, said intermediate layer being of such a nature that it is essentially not impaired by a patterning of the patterned layer;

patterning the patterned layer so as to produce the fluid structure of the fluid device, the fluid structure extending from a first surface of the patterned layer to the intermediate layer;

attaching a first transparent wafer so that the fluid structure is covered;

removing the supporting substrate and the intermediate layer so that the fluid structure is exposed at a second surface of the patterned layer; and

attaching a second transparent wafer so that the fluid structure is covered.

2. A method according to claim 1, wherein the basic wafer is an SOI structure comprising a supporting wafer of silicon, an insulating layer of oxide as an intermediate layer and a silicon layer as a patterned layer on the oxide layer.
3. A method according to claim 2, wherein the patterning step is carried out by means of dry etching silicon, the oxide layer acting as an etch stop.
4. A method according to claim 1, wherein the first transparent wafer is a glass wafer which is attached to the patterned layer by means of anodic bonding.

5. A method according to claim 1, wherein the fluid structure is passivated by means of an oxide layer prior to the step of attaching the first transparent wafer.
6. A method according to claim 1, wherein the second transparent wafer is a glass wafer which is attached to the second surface of the patterned layer by means of anodic bonding.
7. A method according to claim 1, wherein, in the step of removing the supporting substrate and the intermediate layer, the supporting substrate is removed by etching, the intermediate layer acting as an etch stop, whereupon the etching method is changed so that the intermediate layer is etched and the patterned layer acts as an etch stop.
8. A method according to claim 1, wherein the fluid device is a capillary path, the providing step including the step of selecting a basic wafer whose patterned layer has a height of such a nature that a fluid to be transported in the fluid structure is transportable by capillary forces.
9. A fluid device comprising:
 - a patterned layer with a fluid structure, said fluid structure having an active height which corresponds to the thickness of the patterned layer;
 - a first transparent wafer on a first surface of the patterned layer; and
 - a second transparent wafer on a second surface of the patterned layer.
10. A fluid device according to claim 9, wherein the semiconductor layer consists of silicon.
11. A fluid device according to claim 9, wherein the first and second transparent wafers consist of glass and are connected to the patterned layer by an anodic bond.
12. A fluid device according to claim 9, wherein the fluid structure is passivated by an oxide layer.

13. A method of producing a fluid device with a fluid structure having an active height, said method comprising the steps of:

providing a basic wafer comprising a supporting substrate, an intermediate layer on the supporting substrate and a patterned layer on the intermediate layer, the intermediate layer being transparent and of such a nature that it is essentially not impaired by a patterning of the patterned layer, and the thickness of the patterned layer determining the active height of the fluid structure,

patterning the patterned layer so as to produce the fluid structure of the fluid component, the fluid structure extending from a first surface of the patterned layer to the intermediate layer;

attaching a first transparent wafer so that the fluid structure is covered;

removing the supporting substrate so that the transparent intermediate layer is exposed; and

attaching a second transparent wafer to the intermediate layer.

14. A fluid device comprising:

a patterned layer with a fluid structure, said fluid structure having an active height which corresponds to the thickness of the patterned layer;

a first transparent wafer on a first surface of the patterned layer;

a transparent intermediate layer on the other surface of the patterned layer; and

a second transparent wafer on said transparent intermediate layer.

15. An analysis apparatus comprising:

a fluid device comprising:

a patterned layer with a fluid structure, said fluid structure having an active height which corresponds to the thickness of the patterned layer;

a first transparent wafer on a first surface of the patterned layer; and

a second transparent wafer on a second surface of the patterned layer or, alternatively, on a transparent intermediate layer arranged between the second wafer and the second surface of the patterned layer;

a sample fluid being arranged in said fluid component;

a light source for transmitting light onto the first transparent wafer of the fluid component;

a light detector for detecting light that emerges from the second transparent wafer of the fluid component; and

a sample fluid analyzer for determining a property of the sample fluid making use of the light emitted by the light source and detected by the light detector.